

	settings	Description
HF spiking interval	1 Lots	The interval of HF Spiking for each lot(Spike)
HF spike timing	1(or2)	1 : before spiking ; 2 : after HF spiking
Number of HF spiking	4 Times	The stroke count of a measuring pump used for HF spiking

Fig.1a

	settings	Description
HF spiking interval	5 Lots	HF Spiking for every 5 lots
HF spiking timing	1(or2)	1 : before spiking ; 2 : after HF spiking
Number of HF spiking	3 Times	The stroke count of a measuring pump used for HF spiking

Fig.1b

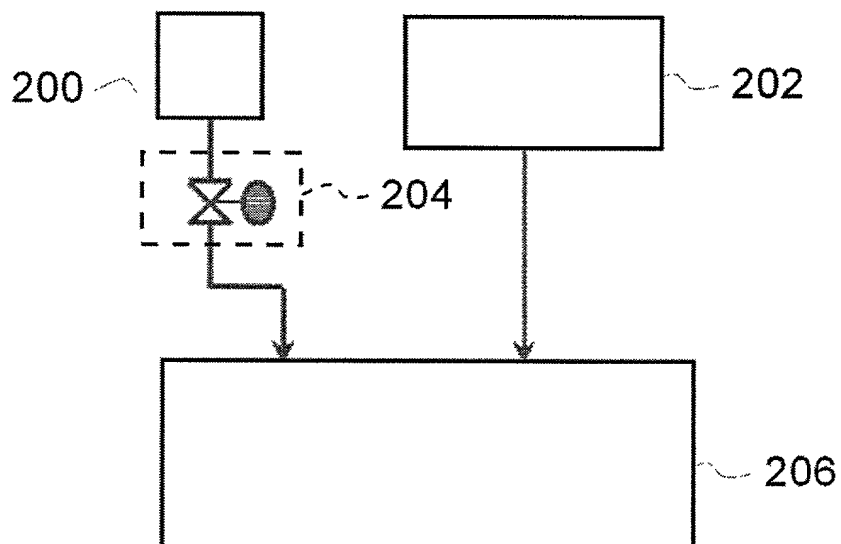


Fig.2a

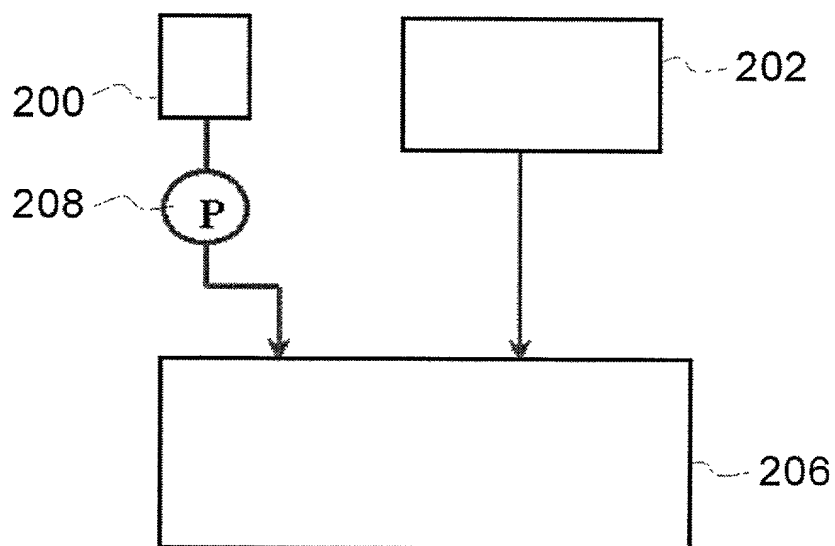


Fig.2b

	Settings	Description
HF spiking interval	60 Min	The interval of HF Spiking
Number of HF spiking	4 Times	The stroke count of a measuring pump used for HF spiking

Fig.3a

	Settings	Description
HF spiking interval	60 Min	The interval of HF Spiking
Number of HF spiking	3 Times	The stroke count of a measuring pump used for HF spiking

Fig.3b

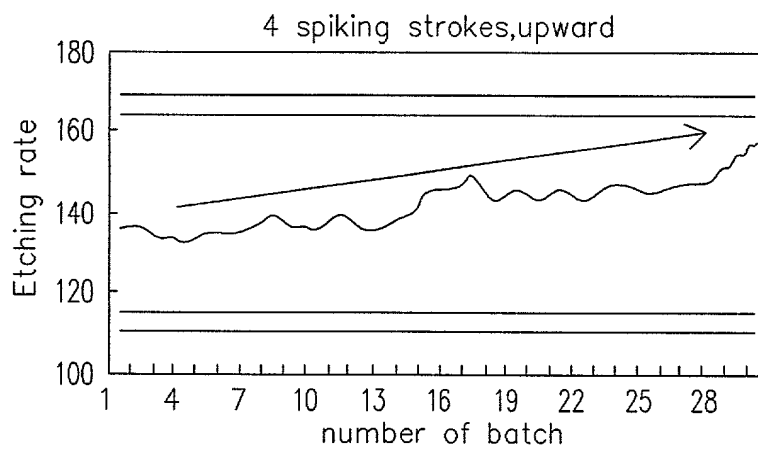


FIG. 4a

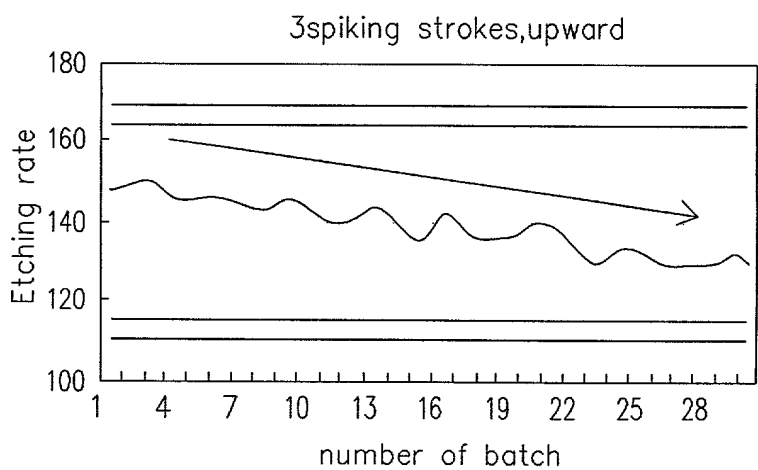


FIG. 4b

Result of etching before system running (280 sec.of etching time)		Target value : 140Å		Target value 440 Å	
Group	Etching amount of silicon nitride monitor wafer	Etching time(sec)	recipe	Etching time(sec)	recipe
Group 1	110-120Å	341	11	536	21
Group 2	120-130Å	314	12	493	22
Group 3	130-140Å	290	13	456	23
Group 4	140-150Å	270	14	425	24
Group 5	150-160Å	253	15	397	25
Group 6	160-170Å	238	16	373	26
Group 7	170-180Å	224	17	352	27

Fig.5a

Result of etching before system running (X sec. of etching time)		Target value : 140Å		Target value : 440 Å	
Group	Etching rate of silicon nitride monitor wafer(Å/sec)	Etching time(sec)	recipe	Etching time(sec)	recipe
Group 1	0.393-0.429	341	11	536	21
Group 2	0.429-0.464	314	12	493	22
Group 3	0.464-0.500	290	13	456	23
Group 4	0.500-0.536	270	14	425	24
Group 5	0.536-0.571	253	15	397	25
Group 6	0.571-0.607	238	16	373	26
Group 7	0.607-0.643	224	17	352	27

Fig.5b

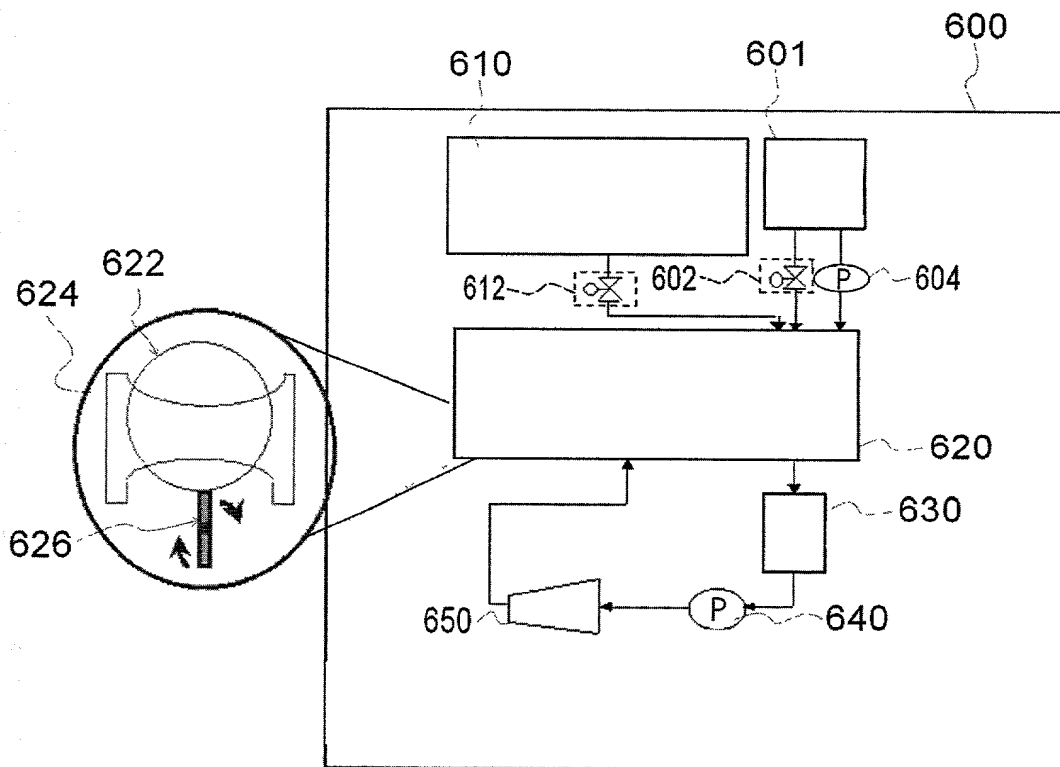


Fig.6

Based-on-charge mode				Based-on-time mode				Selection of control mode	
1, <input type="text"/>	21, <input type="text"/>	41, <input type="text"/>		1, <input type="text"/>	21, <input type="text"/>	41, <input type="text"/>	61, <input type="text"/>	81, <input type="text"/>	Even-charge mode
2, <input type="text"/>	22, <input type="text"/>	42, <input type="text"/>		2, <input type="text"/>	22, <input type="text"/>	42, <input type="text"/>	62, <input type="text"/>	82, <input type="text"/>	Based-on-charge mode
3, <input type="text"/>	23, <input type="text"/>	43, <input type="text"/>		3, <input type="text"/>	23, <input type="text"/>	43, <input type="text"/>	63, <input type="text"/>	83, <input type="text"/>	Based-on-time mode
4, <input type="text"/>	24, <input type="text"/>	44, <input type="text"/>		4, <input type="text"/>	24, <input type="text"/>	44, <input type="text"/>	64, <input type="text"/>	84, <input type="text"/>	Based-on-time-and-charge mode
5, <input type="text"/>	25, <input type="text"/>	45, <input type="text"/>		5, <input type="text"/>	25, <input type="text"/>	45, <input type="text"/>	65, <input type="text"/>	85, <input type="text"/>	
6, <input type="text"/>	26, <input type="text"/>	46, <input type="text"/>		6, <input type="text"/>	26, <input type="text"/>	46, <input type="text"/>	66, <input type="text"/>	86, <input type="text"/>	
7, <input type="text"/>	27, <input type="text"/>	47, <input type="text"/>		7, <input type="text"/>	27, <input type="text"/>	47, <input type="text"/>	67, <input type="text"/>	87, <input type="text"/>	
8, <input type="text"/>	28, <input type="text"/>	48, <input type="text"/>		8, <input type="text"/>	28, <input type="text"/>	48, <input type="text"/>	68, <input type="text"/>	88, <input type="text"/>	
9, <input type="text"/>	29, <input type="text"/>	49, <input type="text"/>		9, <input type="text"/>	29, <input type="text"/>	49, <input type="text"/>	69, <input type="text"/>	89, <input type="text"/>	
10, <input type="text"/>	30, <input type="text"/>			10, <input type="text"/>	30, <input type="text"/>	50, <input type="text"/>	70, <input type="text"/>	90, <input type="text"/>	
11, <input type="text"/>	31, <input type="text"/>			11, <input type="text"/>	31, <input type="text"/>	51, <input type="text"/>	71, <input type="text"/>	91, <input type="text"/>	
12, <input type="text"/>	32, <input type="text"/>			12, <input type="text"/>	32, <input type="text"/>	52, <input type="text"/>	72, <input type="text"/>	92, <input type="text"/>	
13, <input type="text"/>	33, <input type="text"/>			13, <input type="text"/>	33, <input type="text"/>	53, <input type="text"/>	73, <input type="text"/>	93, <input type="text"/>	
14, <input type="text"/>	34, <input type="text"/>			14, <input type="text"/>	34, <input type="text"/>	54, <input type="text"/>	74, <input type="text"/>	94, <input type="text"/>	
15, <input type="text"/>	35, <input type="text"/>			15, <input type="text"/>	35, <input type="text"/>	55, <input type="text"/>	75, <input type="text"/>	95, <input type="text"/>	
16, <input type="text"/>	36, <input type="text"/>			16, <input type="text"/>	36, <input type="text"/>	56, <input type="text"/>	76, <input type="text"/>	96, <input type="text"/>	
17, <input type="text"/>	37, <input type="text"/>			17, <input type="text"/>	37, <input type="text"/>	57, <input type="text"/>	77, <input type="text"/>	97, <input type="text"/>	
18, <input type="text"/>	38, <input type="text"/>			18, <input type="text"/>	38, <input type="text"/>	58, <input type="text"/>	78, <input type="text"/>	98, <input type="text"/>	
19, <input type="text"/>	39, <input type="text"/>			19, <input type="text"/>	39, <input type="text"/>	59, <input type="text"/>	79, <input type="text"/>	99, <input type="text"/>	
20, <input type="text"/>	40, <input type="text"/>			20, <input type="text"/>	40, <input type="text"/>	60, <input type="text"/>	80, <input type="text"/>		

Fig.7



Based-on-charge mode

1, <input type="text" value="1"/>	21, <input type="text" value="1"/>	41, <input type="text" value="1"/>
2, <input type="text" value="2"/>	22, <input type="text" value="2"/>	42, <input type="text" value="2"/>
3, <input type="text" value="1"/>	23, <input type="text" value="1"/>	43, <input type="text" value="1"/>
4, <input type="text" value="2"/>	24, <input type="text" value="2"/>	44, <input type="text" value="2"/>
5, <input type="text" value="1"/>	25, <input type="text" value="1"/>	45, <input type="text" value="1"/>
6, <input type="text" value="2"/>	26, <input type="text" value="2"/>	46, <input type="text" value="2"/>
7, <input type="text" value="1"/>	27, <input type="text" value="1"/>	47, <input type="text" value="1"/>
8, <input type="text" value="2"/>	28, <input type="text" value="2"/>	48, <input type="text" value="2"/>
9, <input type="text" value="1"/>	29, <input type="text" value="1"/>	49, <input type="text" value="1"/>
10, <input type="text" value="2"/>	30, <input type="text" value="2"/>	
11, <input type="text" value="1"/>	31, <input type="text" value="1"/>	
12, <input type="text" value="2"/>	32, <input type="text" value="2"/>	
13, <input type="text" value="1"/>	33, <input type="text" value="1"/>	
14, <input type="text" value="2"/>	34, <input type="text" value="2"/>	
15, <input type="text" value="1"/>	35, <input type="text" value="1"/>	
16, <input type="text" value="2"/>	36, <input type="text" value="2"/>	
17, <input type="text" value="1"/>	37, <input type="text" value="1"/>	
18, <input type="text" value="2"/>	38, <input type="text" value="2"/>	
19, <input type="text" value="1"/>	39, <input type="text" value="1"/>	
20, <input type="text" value="2"/>	40, <input type="text" value="2"/>	

Fig.8a

Based-on-charge mode		
1, <input type="checkbox"/>	21, <input type="checkbox"/>	41, <input type="checkbox"/>
2, <input type="checkbox"/>	22, <input type="checkbox"/>	42, <input type="checkbox"/>
3, <input type="checkbox"/>	23, <input type="checkbox"/>	43, <input type="checkbox"/>
4, <input type="checkbox"/>	24, <input type="checkbox"/>	44, <input type="checkbox"/>
5, <input type="checkbox"/>	25, <input type="checkbox"/>	45, <input type="checkbox"/>
6, <input type="checkbox"/>	26, <input type="checkbox"/>	46, <input type="checkbox"/>
7, <input type="checkbox"/>	27, <input type="checkbox"/>	47, <input type="checkbox"/>
8, <input type="checkbox"/>	28, <input type="checkbox"/>	48, <input type="checkbox"/>
9, <input type="checkbox"/>	29, <input type="checkbox"/>	49, <input type="checkbox"/>
10, <input type="checkbox"/>	30, <input type="checkbox"/>	
11, <input type="checkbox"/>	31, <input type="checkbox"/>	
12, <input type="checkbox"/>	32, <input type="checkbox"/>	
13, <input type="checkbox"/>	33, <input type="checkbox"/>	
14, <input type="checkbox"/>	34, <input type="checkbox"/>	
15, <input type="checkbox"/>	35, <input type="checkbox"/>	
16, <input type="checkbox"/>	36, <input type="checkbox"/>	
17, <input type="checkbox"/>	37, <input type="checkbox"/>	
18, <input type="checkbox"/>	38, <input type="checkbox"/>	
19, <input type="checkbox"/>	39, <input type="checkbox"/>	
20, <input type="checkbox"/>	40, <input type="checkbox"/>	

Fig.8b

Based-on-time mode

1,	30	21,	3	41,	3	61,	4	81,	4
2,	5	22,	4	42,	3	62,	4	82,	4
3,	3	23,	3	43,	3	63,	3	83,	3
4,	4	24,	4	44,	4	64,	4	84,	4
5,	4	25,	4	45,	3	65,	4	85,	4
6,	4	26,	4	46,	4	66,	4	86,	4
7,	3	27,	3	47,	3	67,	3	87,	3
8,	4	28,	4	48,	4	68,	4	88,	4
9,	4	29,	4	49,	3	69,	4	89,	4
10,	4	30,	3	50,	4	70,	4	90,	4
11,	3	31,	3	51,	3	71,	3	91,	3
12,	4	32,	3	52,	4	72,	4	92,	4
13,	4	33,	3	53,	3	73,	4	93,	4
14,	4	34,	3	54,	4	74,	4	94,	4
15,	3	35,	3	55,	3	75,	3	95,	3
16,	4	36,	3	56,	4	76,	4	96,	4
17,	4	37,	3	57,	4	77,	4	97,	4
18,	4	38,	3	58,	4	78,	4	98,	4
19,	4	39,	3	59,	3	79,	3	99,	3
20,	4	40,	4	60,	4	80,	4		

Fig.9a

Based-on-time mode					
1,	<input type="checkbox"/> 0	21,	<input type="checkbox"/> 0	41,	<input type="checkbox"/> 0
2,	<input type="checkbox"/> 0	22,	<input type="checkbox"/> 0	42,	<input type="checkbox"/> 0
3,	<input type="checkbox"/> 0	23,	<input type="checkbox"/> 0	43,	<input type="checkbox"/> 0
4,	<input type="checkbox"/> 0	24,	<input type="checkbox"/> 0	44,	<input type="checkbox"/> 0
5,	<input type="checkbox"/> 1	25,	<input type="checkbox"/> 1	45,	<input type="checkbox"/> 1
6,	<input type="checkbox"/> 0	26,	<input type="checkbox"/> 0	46,	<input type="checkbox"/> 0
7,	<input type="checkbox"/> 0	27,	<input type="checkbox"/> 0	47,	<input type="checkbox"/> 0
8,	<input type="checkbox"/> 0	28,	<input type="checkbox"/> 0	48,	<input type="checkbox"/> 0
9,	<input type="checkbox"/> 0	29,	<input type="checkbox"/> 0	49,	<input type="checkbox"/> 0
10,	<input type="checkbox"/> 1	30,	<input type="checkbox"/> 1	50,	<input type="checkbox"/> 1
11,	<input type="checkbox"/> 0	31,	<input type="checkbox"/> 0	51,	<input type="checkbox"/> 0
12,	<input type="checkbox"/> 0	32,	<input type="checkbox"/> 0	52,	<input type="checkbox"/> 0
13,	<input type="checkbox"/> 0	33,	<input type="checkbox"/> 0	53,	<input type="checkbox"/> 0
14,	<input type="checkbox"/> 0	34,	<input type="checkbox"/> 0	54,	<input type="checkbox"/> 0
15,	<input type="checkbox"/> 1	35,	<input type="checkbox"/> 1	55,	<input type="checkbox"/> 1
16,	<input type="checkbox"/> 0	36,	<input type="checkbox"/> 0	56,	<input type="checkbox"/> 0
17,	<input type="checkbox"/> 0	37,	<input type="checkbox"/> 0	57,	<input type="checkbox"/> 0
18,	<input type="checkbox"/> 0	38,	<input type="checkbox"/> 0	58,	<input type="checkbox"/> 0
19,	<input type="checkbox"/> 0	39,	<input type="checkbox"/> 0	59,	<input type="checkbox"/> 0
20,	<input type="checkbox"/> 1	40,	<input type="checkbox"/> 1	60,	<input type="checkbox"/> 1
				61,	<input type="checkbox"/> 0
				62,	<input type="checkbox"/> 0
				63,	<input type="checkbox"/> 0
				64,	<input type="checkbox"/> 0
				65,	<input type="checkbox"/> 1
				66,	<input type="checkbox"/> 0
				67,	<input type="checkbox"/> 0
				68,	<input type="checkbox"/> 0
				69,	<input type="checkbox"/> 0
				70,	<input type="checkbox"/> 1
				71,	<input type="checkbox"/> 0
				72,	<input type="checkbox"/> 0
				73,	<input type="checkbox"/> 0
				74,	<input type="checkbox"/> 0
				75,	<input type="checkbox"/> 1
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				77,	<input type="checkbox"/> 0
				78,	<input type="checkbox"/> 0
				79,	<input type="checkbox"/> 0
				80,	<input type="checkbox"/> 1
				81,	<input type="checkbox"/> 0
				82,	<input type="checkbox"/> 0
				83,	<input type="checkbox"/> 0
				84,	<input type="checkbox"/> 0
				85,	<input type="checkbox"/> 1
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				87,	<input type="checkbox"/> 0
				88,	<input type="checkbox"/> 0
				89,	<input type="checkbox"/> 0
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				92,	<input type="checkbox"/> 0
				93,	<input type="checkbox"/> 0
				94,	<input type="checkbox"/> 0
				95,	<input type="checkbox"/> 1
				96,	<input type="checkbox"/> 0
				97,	<input type="checkbox"/> 0
				98,	<input type="checkbox"/> 0
				99,	<input type="checkbox"/> 0
					<input type="checkbox"/> 1

Fig.9b

Based-on-charge mode				Based-on-time mode							
1, 0	21, 0	41, 0		1, 30	21, 3	41, 3	61, 4	81, 4			
2, 0	22, 0	42, 0		2, 5	22, 4	42, 3	62, 4	82, 4			
3, 0	23, 0	43, 0		3, 3	23, 3	43, 3	63, 3	83, 3			
4, 0	24, 0	44, 0		4, 4	24, 4	44, 4	64, 4	84, 4			
5, 1	25, 1	45, 1		5, 4	25, 4	45, 3	65, 4	85, 4			
6, 0	26, 0	46, 0		6, 4	26, 4	46, 4	66, 4	86, 4			
7, 0	27, 0	47, 0		7, 3	27, 3	47, 3	67, 3	87, 3			
8, 0	28, 0	48, 0		8, 4	28, 4	48, 4	68, 4	88, 4			
9, 0	29, 0	49, 0		9, 4	29, 4	49, 3	69, 4	89, 4			
10, 1	30, 1			10, 4	30, 3	50, 4	70, 4	90, 4			
11, 0	31, 0			11, 3	31, 3	51, 3	71, 3	91, 3			
12, 0	32, 0			12, 4	32, 3	52, 4	72, 4	92, 4			
13, 0	33, 0			13, 4	33, 3	53, 3	73, 4	93, 4			
14, 0	34, 0			14, 4	34, 3	54, 4	74, 4	94, 4			
15, 1	35, 1			15, 3	35, 3	55, 3	75, 3	95, 3			
16, 0	36, 0			16, 4	36, 3	56, 4	76, 4	96, 4			
17, 0	37, 0			17, 4	37, 3	57, 4	77, 4	97, 4			
18, 0	38, 0			18, 4	38, 3	58, 4	78, 4	98, 4			
19, 0	39, 0			19, 4	39, 3	59, 3	79, 3	99, 3			
20, 1	40, 1			20, 4	40, 4	60, 4	80, 4				

Fig.10

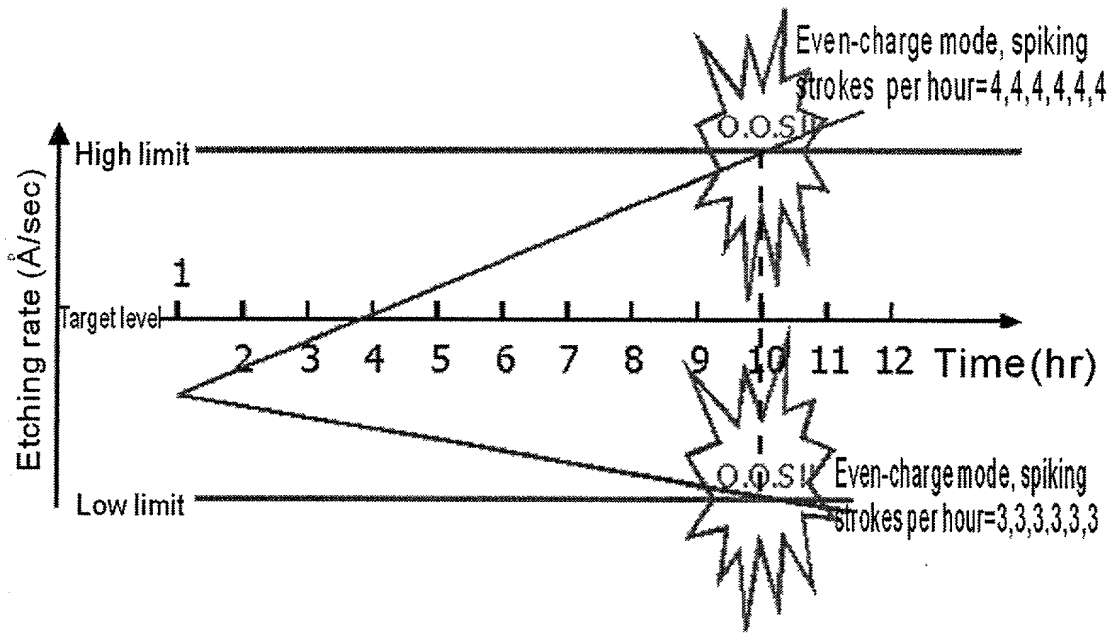


Fig.11

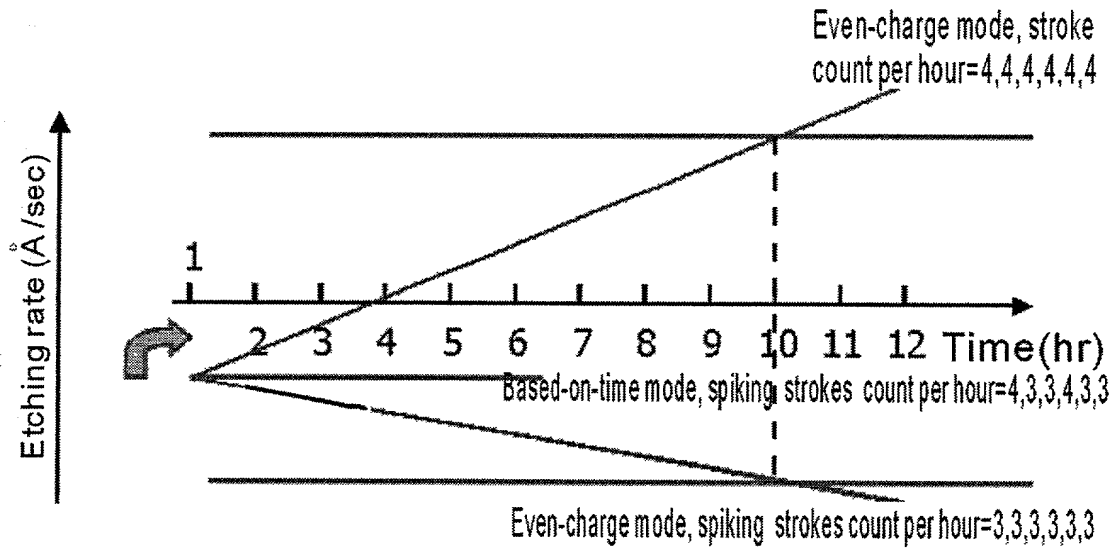


Fig.12

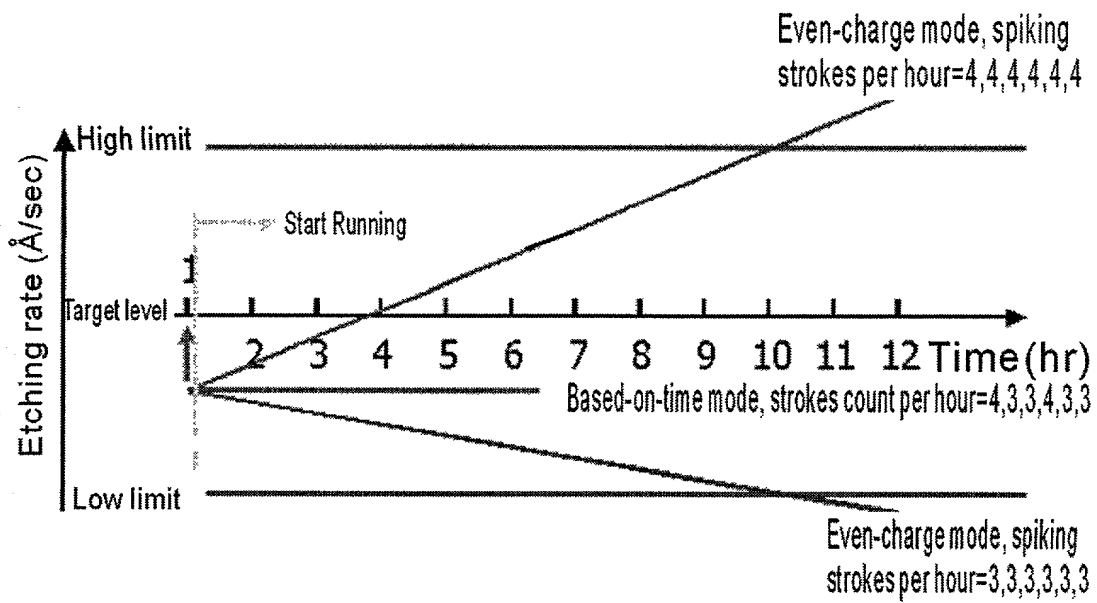


Fig.13

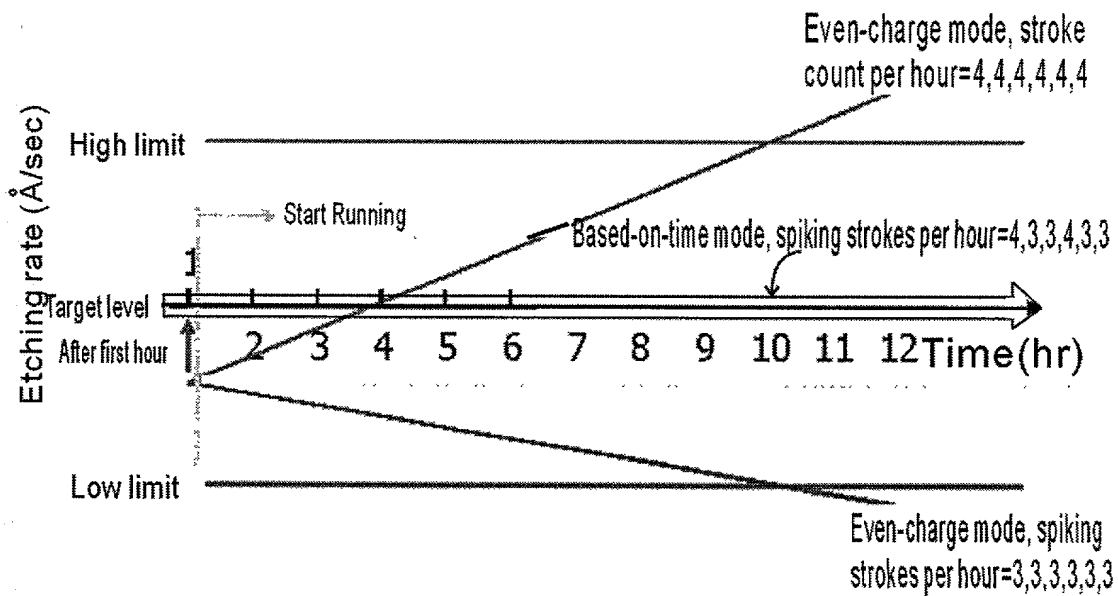


Fig.14